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Letter to the Editor

Patients and Parents Prefer Scrubs: An Analysis of Pediatric Orthopaedic Physician Attire in the Post-COVID Pandemic Era—Letter to the Editor

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Dear Editor:

The authors attempted to investigate preferences towards physician attire in the pediatric orthopaedic outpatient setting [Patients and Parents Prefer Scrubs: An Analysis of Pediatric Orthopaedic Physician Attire in the Post-COVID Pandemic Era, *JPOSNA*® February 2023] by performing an anonymous, voluntary survey of 100 children and 100 of their parents/guardians in a tertiary pediatric orthopaedic clinic in New York City. There are many flaws in the design of the study and the interpretation of the data.

The study was performed in a single center in Manhattan. The authors did not state what percentage of patient/parents/guardians in their clinic voluntarily responded. The authors also failed to mention the demographics of the voluntary participants and whether the demographics of the participants matched those of the non-participants. And they failed to mention whether the participants lived in Manhattan, other boroughs of NYC, the suburbs, rural areas, or came from other more distant areas. And, if they were all from Manhattan, it was not mentioned which neighborhoods were represented and how that might indicate their demographics.

One cannot ignore potentially inherent systemic racism. Approximately 75% of the participant patients and their parents/guardians were white. What percentage of all patients/parents in their clinic are white? What percentage of their docs are white? There are, no doubt, pediatric orthopaedic clinics in the U.S. in which 75% of the patients are black, Asian, or Hispanic. And the docs in those clinics might also be Black, Asian, Hispanic, or White. Is it fair to assume that the answers would be the same? Were there differences in the responses of their participants related to race?

Seventy-six percent of the parents/guardians were female. Did female and male parents/guardians respond similarly?

The authors failed to mention if the subjects were in a high-volume trauma clinic, a high-fear level oncology clinic, a multidisciplinary neuromuscular clinic, or a quaternary elective spine clinic with wealthy patients from the U.S. and abroad who waited months to be seen and were paying cash.

Comparing formal attire, business casual, casual, and scrubs is a reasonable comparison, but separating them into equal categories, in the final analysis, is not, in my estimation, valid. Formal attire, business casual, and casual are all variations on the theme of "normal" attire, i.e., worn by normal people in normal settings. Scrubs are NOT normal attire, even for healthcare providers who wear them in healthcare settings but do not wear them in restaurants, the ballet, the opera, weddings, and funerals. So, given that premise, the comparison should be scrubs vs. the other three categories combined. And if that is the case, formal attire, business casual, and casual accounted for over 55% of preferences compared with less than 45% for scrubs. Furthermore, all scrubs are not alike. Some are tailor-made, bright in color, wrinkle-resistant, and have the beautifully embroidered name of the clinic on the left chest area. Other scrubs are poorly fitting, wrinkled, dirty (perhaps blood stained), and the same as the ones seen being worn by the housekeeping staff. Importantly, not every body type can pull off scrubs! The representative pictures in this study show physically fit millennial men and women.

Considering the flaws in design, inherent biases, and non-generalizable data, the only "conclusion" one can come to is that many/most patients and parents don't care what you wear! But that, too, is an overreach. I would add until better studies are carried out, you should consider your unique practice setting, the types of patients you see, what the competition in your area wear, and for God's sake wear clean, tailored, wrinkle-free scrubs if you must wear scrubs.

Vincent S. Mosca, MD

Disclaimer

The author reports no conflicts of interest related to this subject matter.

Authors' Response

Dear Editor:

We read with great interest the letter to the editor written by Dr. Vincent Mosca regarding our questionnaire study "Patients and Parents Prefer Scrubs: An Analysis of Pediatric Orthopaedic Physician Attire in the Post-COVID Pandemic Era."

Like the vast majority of pediatric orthopaedic investigations, our study was performed at a single institution.[1] As such, it is subject to all the limitations of any single-center study. This was discussed in the limitations section of the manuscript to acknowledge that it may limit the generalizability of the study findings. The reader correctly identified that our institution is in Manhattan, where we are fortunate to serve a large, diverse population of patients in the epicenter of one of the most diverse cities in the United States.[2-4] The study took place in the single common waiting room of our pediatric orthopaedic clinics. Our waiting room serves all our pediatric orthopaedic surgical subspecialties (including general pediatrics, spine, sports, hand, foot, limb deformity, trauma, and neuromuscular conditions). Additionally, 20% of our patients are uninsured, underinsured, or on government assistance. The study took place at the main hospital campus, which is accessible by various forms of transportation, including subway, bus, rail, tram, ferry, car, and on foot. Therefore, our typical patients come from Manhattan, Brooklyn, Queens, Staten Island, the Bronx, Connecticut, Long Island, Westchester, and northern New Jersey—all of whom are represented in this study. Though the data was collected as a convenience sample performed at a single center, it represents the substantial diversity in our city across a multitude of variables. Altering proportions of individual variables in a study cohort does not meaningfully serve to increase study generalizability. All single-center studies would still be subject to such limited generalizability due to the nature of a single-center study design. This is particularly true regarding variables that have been previously shown not to be associated with the outcome of interest (in this case race/ethnicity, socioeconomic status, and physician attire preference), which we explain in more detail below.

All patients and caregivers in our waiting room during the study period were invited to participate in the study. Due to institutional standard research practices, we are not allowed to collect any specific information about patients who decline to participate. Our hospital's institutional review board forbid us to review the insurance or financial aspects of the study subjects' medical records for this particular study protocol. Furthermore, it would have been inappropriate to ask our patients about their income and socioeconomic status, especially in such a busy common area such as a waiting room. Moreover, previous literature demonstrates that insurance coverage is not a significant predictor of physician-attire preference.[5] Therefore, we did not collect or analyze subject-level data on income or socioeconomic status for this study.

A majority (76%) of the accompanying caregivers were female. This was clearly reported in the manuscript. We assert that this is not a flaw in the study design but simply a product of a known trend for female caregivers to accompany minors to medical appointments, which has been demonstrated in large epidemiologic studies to be around 82%.[6] The current study was not designed nor powered to investigate response differences by parent or patient race, gender, socioeconomic status, or other variables. Rather, we attempted to understand the preferences of a representative sample of patients who are experiencing the healthcare system. If female caregivers are more likely to accompany minors to their medical appointments, then we are most interested in their responses.

Regarding the reader's explicit concern about "potentially inherent systemic racism", it is not objectively clear how this phenomenon may affect the study results. However, existing literature in other clinical settings has shown that race is not a predictor of physician attire preferences.[5,7] It is a distraction to declare that racism affected our study results without provision of an evidence or logic-based hypothesis as to how it might have done so. We recognized the possibility for racial bias when designing the study. We sought to eliminate the risk of inherent biases by obscuring the skin color of the models demonstrating the attire options in Figure 1. We were quite pleased with the success of this blinding technique; in fact, the reader incorrectly claimed that models were "millennials" (the individuals in Figure 1 were Generation Z). Additionally, participants filled out study questionnaires prior to seeing physicians and their attire. This was another measure we took to limit inherent biases. While we could not account for those patients/caregivers who had looked up the demographics of their provider prior to their visit, they were blinded to their attire on the day they participated in the study.

The reader's comment about scrubs not being "normal" attire is nonsensical. While that may be true out in public (although scrubs *are* frequently seen in NYC given the high density of healthcare facilities), the current study investigated attire preferences *in a hospital clinic* as the location of interest. In other settings, although not frequently seen out on the street, a pilot's uniform is "normal" on a plane, a chef's hat is "normal" in a kitchen, and a jersey is "normal" on a basketball court. To that end, scrubs (and the other attire options on the survey) are very much "normal" attire in a hospital. Whether scrubs are normal attire "in restaurants, the ballet, the opera, weddings, and funerals" is completely irrelevant to a study investigating attire preferences in a hospital clinic. The methodological assertion that scrubs should be analyzed separately from the other three categories for this reason is patently incorrect. Taking a 4-level ordinal variable and unequally combining categories is senseless methodologically. It would have demonstrated questionable research acumen by manipulating the 4-level attire variable into a lopsided (3 groups to 1) dichotomous variable and then asserting that "non-scrubs" are preferable to scrubs because now the combined group is more popular than one of the original categories.

We agree that not all scrubs are alike, but to indicate that scrubs may be "poorly fitting, wrinkled, dirty, perhaps blood stained…" is a hyperbolic mischaracterization. Visibly soiled or blood-stained scrubs are neither permitted by our hospital nor the regulations set forth by the Occupational Safety and Health Administration [OSHA: 29 CFR 1910.1030(d)(3)(vi)].[8] At any hospital, visibly soiled scrubs must always be immediately changed for clean scrubs.

We vehemently disagree with the reader's assertion that "not every body type can pull off scrubs." It is our firm belief that anybody can wear any of the attire options presented in the current study appropriately and professionally. All individuals should feel empowered to wear clothing without concern that they "cannot pull it off" with their body type. Unfortunately, some clinics do not have the resources to provide scrubs that are "tailor-made, bright in color, wrinkle-resistant, and have the beautifully embroidered name of the clinic on the left chest area." We chose what we believed to be a generic pair of blue hospital scrubs that were appropriately sized to the model in order to maximize the generalizability of the current study's findings. Figure 1 was included to further eliminate ambiguity as to the style or design of the clean, generic scrubs.

In conclusion, we recognize (and explicitly discuss in the manuscript) that there are limitations to the current study and our efforts to mitigate them. We included those that are inherent to any single-center investigation. We successfully minimized the risk of potential inherent response biases. This was achieved by blinding subjects to the race and ethnicity of the attire models and by collecting subject responses prior to their physician encounters. We reject the notion that only certain body types can wear scrubs (or any attire for that matter). Existing literature has found no association between race, socioeconomic status, and physician attire preference. However, if demographics are ever shown to in fact significantly change attire preferences, then perhaps providers can have an evidence-based discussion about biases rather than blindly claiming that the results of a study are subject to systemic racism without offering any further hypotheses. In the meantime, as with any research study, we encourage the *JPOSNA*® readership to evaluate our findings critically and implement them if they are applicable to their individual practice settings. We will continue to follow our patients' preferences and wear clean scrubs.

Sincerely,

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Preston W. Gross, BS
Danielle E. Chipman, BS
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Disclaimer

The authors report no conflicts of interest related to this subject matter.

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